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THE CONTINUOUS CONTRACT SYSTEM.

Hon. Theodore E. Burton made a masterly argument in the House of Representatives on Monday, the 6th ult., on behalf of the continuous contract system. He pointed out that in the Hay Lake channel improvement, the work by this method will cost $900,000 less than the estimates, a saving of 33 per cent. In Humboldt harbor and bay, California, the saving was about 30 per cent. and on the 20-foot channel, on the Great Lakes, the saving will be about 15 per cent. He then uttered the following sentiments, which should find an echo in the heart of every man who is a friend of his country's commercial interests—and no man is a true patriot who is not such a friend:

"I hope the time is not far distant when this biennial river and harbor act will include only provisions for repair and maintenance, and for the payment of the first installment on projects, appropriations for which thereafter will be made annually as the work progresses. In the first place, this is the most economical system. It requires little discrimination to see that for every project a plant must be provided and certain expenses incurred, whether the whole of the work be done, or only an insignificant portion of it. Nothwithstanding the fact that the new method has not been tried under the most favorable circumstances, we are not without experience as to its results.

"In addition to the direct results from actual saving in cost, equally important advantages arise from the earlier utilization of the completed project and the diminished injury from deterioration and decay, resulting from tardy completion of the work by sections. Under the traditional policy for the construction of buildings and for river and harbor improvements, piecemeal appropriations are doled out in a halting and dilatory manner, and often before the capstone is placed upon a a structure the foundation begins to rot; and before a pier or breakwater is finished the end at which it was first begun is so decayed that the waves of the first storm threatened to wash it away.

"Not only is this the most economical plan; it is, at the same time more courageous and honest. Under the old system partial appropriations were made for the beginning of extensive public works, when the facts as to the total amount required were not well known to the House, and without the careful consideration which would have been given had there been discussion upon the desirability of appropriating the full amount necessary. The result was that many projects were undertaken without sufficient knowledge of their merits; but after the work was once commenced the argument was that the government should not abandon the project to which we had committed ourselves by partial appropriations, because the sum already expended would be lost, and we should be subjected to the reproach of having abandoned enterpises once begun."

Mr. Burton then replied to charges of extravagance in the framing of the bill. He compared it with the $30,000,000 appropriation just made for the naval establishment, and pointed out the necessity of giving substantial encouragement to the merchat marine. He stated that in recent years the Tyne, at and below New Castle, Eng., had been deepened and other improvements made, at a cost of $20,000,000. On the Mersey and the Clyde much larger sums had been expended. In the United States the total of appropriations for rivers and harbors, since the formation of the government, including amounts appropriated for containing contracts under the sundry civil bill, was $272,630,515. France, from 1814 to 1894 inclusive, has expended on permanent improvements approximately $500,000,000, of which $300,000,000 had been for inland navigation, and $200,000,000 for ports and harbors. For care and maintenance there had been expended in the same time $135,000,000 for inland navigation and 70,000,000 for ports and harbors.

INAUGURAL TRIP, CITY OF BUFFALO.

About 2,000 invitations has been issued by the management of the Cleveland & Buffalo Transit Co. to their friends in Cleveland and Buffalo to enjoy complimentary trips on the new steamship "City of Buffalo." A committee of the city council of Buffalo, with a party of newspaper men from the two cities, will go to Detroit, arriving there on the morning of the 12th inst., about 9 o'clock a. m. The Buffalo committee will formally present to Capt. Edwards a fine set of colors for the new steamer, which will be hoisted to place as a part of the ceremony. At 10 o'clock the steamer will leave the D. & C. dock, Detroit, for Cleveland, reaching this city at 4 o'clock in the afternoon. A general reception will be given in the early evening, and, with a new party of Cleveland guests joining the boat, the City of Buffalo will clear at 12 o'clock Tuesday night for the foot of Lake Erie. She will be accorded a rousing reception, so Buffalo reports state, when she arrives at that city. A reception and lake rides will occupy the remainder of the day, and the City of Buffalo will leave for Cleveland at 10 o'clock Wednesday evening, returning here with the Clevelanders and also carrying a number of invited guests from Buffalo. A lake ride will be given out of Cleveland Thursday and the Buffalo party will return that evening. The City of Buffalo will go into regular commission on Thursday evening, and from that time on throughout the season the service on the Cleveland & Buffalo line will be daily.

ANTHRACITE COAL PRODUCTION.

The anthracite coal companies reached an agreement through their president late last week, upon the allotment of tonnage until January 1, 1897. The new allotment was based upon the business transacted by each company over a considerable period of time, taking into consideration any important circumstances having a bearing upon such business for the ensuing year, no arbitrary rules being followed. The figures in detail are as follows: Reading, 20.50; Lehigh Valley, 15.65; Central, of New Jersey, 11 70; Delaware, Lackawana & Western, 13.35; Delaware & Hudson, 9.60; Pennsylvania Railroad, 11.40; Pennsylvania Coal Co., 4; Erie, 4; New York, Ontario & Western, 3.10; Delaware, Susquehanna & Schuylkill, 3 50; New York, Susquehanna & Western, 3.20. The new percentages must continue until January 1, 1897, but after that date propositions to change them will be considered on thirty days' notice. J. Rogers Maxwell, President Central Railroad of New Jersey; E. B. Thomas, President Erie Railroad; E. P. Wilbur, President Lehigh Valley Railroad; Joseph S. Harris, President Pennsylvania & Reading Railroad; and A. Walter, President Delaware, Susquehanna & Schuylkill Railroad were appointed a committee to consider the feasibility of organizing an Authracite Coal Association, to be based on the principles similar to those of the Joint Traffic Association formed by the trunk lines and their western connections.

THE CORALIA THE PRIZE WINNER.

The steamer Coralia left Escanaba at 2:00 o'clock Tuesday morning, with her first cargo of 4,301 gross or 4,860 net tons of iron ore on a mean draft of 15 feet, 3 inches. This is the largest cargo of any kind ever carried on the lakes.

NEWS AROUND THE LAKES.

BUFFALO.

STILL A LITTLE ICE AND COLD WEATHER—LOW WAGES FOR MASTERS—NEWS FROM THE FOOT OF LAKE ERIE.

Special Correspondence to The Marine Record.

BUFFALO, May 5.

Fifteen days since the first steamer made her way through the ice and stlll Niagara River is choked with it, some ice fields being reported to be 20 feet under water. But the end is near. There is only about a mile and a half to get rid of itself this week. The accidents on account of it are quite a few, but they are not very serious. The steamer Tioga had to come back to repair a started plate and the steel Gratwick and the Bielman broke their wheels.

There is daily evidence of the improvement of the water in Lake Erie, and the water at the Sault lock has risen half a foot in a week. There is some notion that the rise, both here and at Erie, reported within a few days, is on account of the grounding of the ice at the mouth of the lake where the water is very shallow, but that question will have to await solution till the ice is out of the way. There has been very little grounding of craft in Buffalo harbor during the past week, at any rate.

There are a few good captains left over this spring and they of course feel sore about it; but there is sometimes a sort of negative consolation to be picked up, even in such a case. One of them said to me the other way he was not surprised at some of the accidents that had been reported this spring, for he had heard that one of the latest appointments made this season was on a salary of $65 a month. The vessel was a big first-class barge. Low-priced captains are supposably short in experience. when there are good ones ashore.

One of the Buffalo dailies is engaged in the high-minded business of publishing incendiary stories of the hardships and poor pay of the dock laborers, with the apparent hope of stirring them up to a strike. Disinterested people say that the dock system is much better than it used to be, even if it is not perfect, and add that the effort to stir up strife is a personal drive at a new competitor of the paper.

I hope that the steamer Lizzie Madden is not going to be handicapped this season by the names of the two barges that she has taken on as a tow. They are the Noquebay and the Mautenee. All that these barges will need in a gale if the tow line parts is to tie a chain to their names and throw the end overboard. The anchorage they would get would stand the biggest northeaster out.

There is a Swiss fisherman named Heine, after the immortal skeptic poet, who is setting all the fools of the Capt. Webb type crazy by doing some dare-devil small-boat acts in the Niagara above the Falls. As the police did not keep their first resolution to clap him in jail some life-saving keeper ought to get an order of court to take possession of Heine for a surfman, for he is not only going to get drowned this summer, but his imitators will keep the Falls in a ferment the season through with their tricks to catch public notice.

There is no life in the coal trade yet. It is now about all that is left dormant in the lake business. It was expected that something of an average activity would spring up with the opening of the month, but the second week finds not more than one or two shippers ready for business, and they are doing but a sm l handling.

It looks as though Manager Bullard had got the best of it in the move up town made by the Union Steamboat, Union Transit and Soo lines. They are all in fine quarters on the ninth floor of the Ellicott Square block. but Mr. Bullard is on the lake side, which give him a big outlook on the entrance to the harbor and far beyond. Now for Niagara power and a final abatement of the smoke nuisance, then the outlook will be complete.

The wise reporter who is engaged in telling imaginative stories of the late doings of the Union Transit Line is still loose, and still more startling revelations, never dreamed of by interested parties, are sure to come out. One thing is settled—if the steamer Globe is not put into the line after all this there is going to be trouble in newspaperdom. Manager French has concluded to accommodate himself to the case in at least one particular.

He will make all haste to become more than 45 years old and only asks a reasonable time. After that is done maybe something else will happen, but if the Globe ever comes under his management the deal will have to be made yet.

The firm of Hitchcock & Wilcox, Average Adjusters, insurance and vessel brokers, has been dissolved by mutual consent. Mr. Daniel H. Wilcox, having bought out Mr. Hitchcock's interests, good will of the business, etc., will continue the business in new offices. Rooms 7 and 8, Exchange Building, No. 202 Main street

The tug Joe Harris arrived here Monday morning from Cleveland with the fleet of steel canal-boats. They are bound for New York on their first trip of the season. The time from Cleveland was thirty-one hours.

The tug Cascade returned from Ashtabula to day. Tuesday, making the 117 mile run from pier to pier in nine hours.

It is too bad that the excursion-boat managers have been able to do nothing so far this season but run their heads together. There is much need of a general co-operation and as the charges they make have always been low there is no one who would object to a single management for that matter. But there is now a good prospect of every interest starting out strictly for itself, and if there is not a deficiency to meet in more than one line when fall comes on it will be the first time.

The lesson of the spring grain fleet so far is that it takes good grain as well as good vessels to store any grain, especially corn, afloat during the winter. When the Chicago fleet started out it was said that there would be very little difficulty with it, for the vessels were A1; and so it proved, for with the exception of the 21,000 bushels wet by the broken pipe on the barge McLachlan there has been very little wet grain. The trouble is that the corn was often out of condition when it was loaded. This ought to release both vessel and insurance people from liability. JOHN CHAMBERLIN.

CLEVELAND.

COMMISSIONERS APPOINTED TO SPEND THE MONEY APPROPRIATED FOR HARBOR, FLUSHING TUNNEL, AND OTHER PURPOSES.

CLEVELAND, May 7.

The Mayor has appointed as a commission to direct the work of improvements of the river harbor to the extent of $500,000, the following gentlemen: Lee McBride, Harvey D. Goulder, M. A. Bradley, Col. A. T. Van Tassel, N. A. Gilbert, Capt. C. E. Benham, and Julius Feiss. The commission which is to have charge of the money to be expended on a system of disposing of garbage, and for constructing a tunnel for flushing the Cuyahoga River was appointed as follows: J. W. G. Cowles, president of the Chamber of Commerce; Samuel Mather, W. J. Crawford, Henry W. S. Wood, H. W. Case, and Dr. W. H. Humiston.

The Vessel Owners' Towing Company has opened a branch office on the Cleveland, Canton & Southern (Connotton) dock, for the transaction of business in the upper part of the river. The tugs Allie May and Curtiss will be stationed there.

Joseph R. Oldham leaves tonight to look after the repairs to the Emily P. Weed, which lost her rudder at the Sault.

The helpers at the Cleveland shipyard went out this morning, demanding an increase in pay. The strike does not affect the mechanical work in the yard.

Congressman Burton has interviewed Commander Wilde, the Naval Secretary of the Lighthouse Board, to hasten, if possible, the action of the board in locating a lightship and making other provisions for lighting Grosse Point cut, in the lower end of Lake St. Clair. The order for erection of the temporary light has been issued.

Mr. C. T. Hitchcock, insurance adjuster, and late of the firm of Hitchcock & Wilcox, Buffalo, has been in the city most of the week. It is probable that Mr. Hitchcock will open an office in Cleveland.

The new steamer Coralia, which left Escanaba at 3 o'clock Tuesday morning with the largest cargo of ore ever carried down the lakes, arrived off Ashtabula at 5 o'clock this morning, but was not able to enter port until daylight, by reason of thick weather. The Coralia is as good a traveler as she is a carrier. Her engines were crowded at no time, but she made an average speed of 13½ miles, her wheel making from 70 to 72 turns per minute. She was the admiration of everybody on her way up and down. She steams easily, and was very moderate in her fuel consumption. Capt. George P. McKay, manager of the Mutual fleet, made the trip on her, accompanied by Major W. B. Stockman, local forecast official of the Weather Bureau. Both report a most enjoyable trip.

CHICAGO.

BETTER GRAIN FREIGHTS INCREASE THE ACTIVITY—VARIED CAREER OF A PIONEER MASTER—W. J. CONNERS' NEW QUARTERS.

CHICAGO, May 6.

Special Correspondence to The Marine Record.

The steamer Progress, light, arrived from Detroit May 2, to load grain at this port.

The Independent Tug Line towed the steamer Thomas Davidson to Keith's elevator; the steamers E. P. Wilbur and Progress to Armour's A elevator; the steamer Oceanica to the Santa Fe elevator; the steamer Oceanica to John Murray's coal dock at Chicago Ave.; the steamer William Chisholm to O. S. Richardson's coal dock at South Halsted street; the schooner Thomas Quayle to Driskie's coal yard.

The Dunham Towing Company towed the steamer R. P. Fitzgerald to the Atlantic elevator; the steamer John Plankinton to the City elevator; the steamer Wiley M. Eagan to Armour's A and B elevators; and several line steamers to elevators.

Grain freights are improving; 2c on corn to Buffalo was reached on Tuesday. H. W. Cook & Co. chartered the steamer Normandie for wheat to Cleveland; the steamer John Spry and consort Johnson, for iron ore, Duluth to South Chicago; the steamer W. P. Ketcham and consort George B. Owen, for coal from Oswego to Chciago; the steamer Robert Holland and consorts Minch and Warmington, for lumber, Duluth to Chicago; the steamer Adella Shores and consort Middlesex, for coal from Oswego to Milwaukee.

W. J. Conners, the well known freight handler, has removed his place of business at this port to 46 River street, where he has much more commodious and convenient offices. His business here is entrusted to the management of Messrs. John Bohen, A. A. Gillespie and Edgar W. Burns, who are well qualified to look after his interests.

Capt. Chas. A. Kirtland, now of the Hurson Transportation Company's steamer City of Fremont, is hale and hearty at the age of three-score years and ten. His early life was spent on the New England coast, a fitting school for so worthy a member of his cloth. The Captain at an early age acquired a liking for wrecking operations. Thirty-two years ago he was engaged by the Goodrich company to release their stranded steamer Sea Bird, which he successfully accomplished, after which he was given command of the Goodrich liner Comet, and remained in the company's employ many yeaas. In 1872 he bought an interest in the wrecking tug Leviathan, and was in charge of her in the wrecking business until about 1884, when he sold out his interests. Capt. Kirtland has patented a very complete sounding apparatus for finding depths when a vessel is under way. Several of the machines are now in use. The steamers Seneca, Chemung and Northern Light are each carrying one, and the Captain is now about to place one on the steamer Saranac. This sounding machine of Capt. Kirtland's is practicable, reliable, and almost automatic, so that if its merits were more widely known scores of steamers would no doubt be fitted with them. In addition to seeing-tests made of the sounding machine, I observed important alterations being made in the saloon cabin of the City of Fremont so as to give more accommodations to the largely increasing passenger traffic of the Hurson Transportation Co. between this port and Milwaukee.

THOMAS WILLIAMS.

FLOTSAM AND JETSAM.

The schooner C. W. Ryan will go into the Lake Michigan salt trade.

The steamers Dove and Sterling will run between Toledo and Monroe.

The government depth of water in Sturgeon Bay canal is 13.7 feet.

The last of the old St. Ignace ore docks is being raised and remodeled for lumber shipping purposes.

Vessels have been somewhat blockaded at the Sault canal of late. The Canadian canal will be opened today.

Port Clinton wants a lighthouse at the end of the pier and the Lighthouse Board has asked for a report from Col. Smith.

Thomas W. Swift has been appointed assistant inspector of hulls, and D. W. Lanigan, assistant inspector of boilers at Milwaukee.

The Star-Cole Line has cut the Detroit-Port Huron rate to 25c. for both, one way and round trip business, to offset the greater speed of the Unique.

The W. & M. Company have not succeeded in changing the Perrett's name. The Perrett is now equipped with a search-light of 8,000 candle-power.

At Buffalo 8,200,000 bushels of grain were unloaded from vessels by the new elevator system last week, the largest quantity ever handled at one port in the time.

The steamer Helena reached Uhrig & Son's dock, Milwaukee, with a full load of soft coal at 8 a. m., April 29 and finished discharging at 10 a. m., the following day.

The government has begun dredging the harbor at Sheboygan. The work is being done under the old appropriation Sheboygan receives $26,000, just what it asked for.

The Canadian revenue boat Petrel has seized 13 American gill nets in Canadian waters within the week, as well as a quantity of fish. The catch was made near the Old Hen island.

Collingwood complains that the Ontario government is disappointing her in not furnishing money for harbor improvement. The municipality has started some expenditures.

The Canadian government has made the canal tolls the same as last season.

Bissell's big dock at Detroit has received about $2,000 in repairs this season.

The lower Limekiln light was carried away by a raft, Tuesday night, but has probably been replaced by this time.

Recent discoveries of ore in the Republic mine warrant heavy production for some years to come. There are now 350 miners working there, and 150 more will soon be employed.

The Ogdensburg Transit Co.'s Central Vermont Lines will charge a rate 10 cents lower per hundred pounds from New York to Milwaukee and Chicago, via the Great Lakes, than on the all-rail routes. This line may get into the Lake Superior trade this year.

The western connections of the Union Transit Co., which has recently purchased five boats which it formerly had under charter, are the C., St. P., M. & O. and the Northern Pacific at Duluth, and the Eastern Minnesota and the Great Northern at West Superior.

Senator Blanchard has introduced a bill providing for fine and imprisonment of anybody who shall discharge or deposit ashes or other solid matter in the water of any harbor or navigable channel for the improvement of which the government has appropriated funds.

Work has been commenced on some important improvements to the Sage & Co., property along the river front at West Bay city. The dock for a distance of 600 feet south of Midland street will be rebuilt and put in first class condition for public use. John street will be opened from its present terminus to the river, sidetracks will be laid on the property and a street running parallel with the river and about 300 or 400 feet back will be opened.

The first work performed by the new Plum Island Life-Saving crew was on April 16, when the scow-schooner Agnes Behrman went adrift in the ice. She dragged anchor and the ice was fast carrying her toward Death's Door passage. Capt C. O. Peterson called upon the life-saving crew for help and they immediately responded. A kedge anchor and 1,000 feet of line was run out from the vessel and by heaving she was carried clear of the anchor ice. The crew worked all day in saving the vessel.

The Pelee Island telephone cable has been repaired, after heavy damages by ice and anchoring vessels. As soon as proper arrangements can be made the cable will be taken up and relaid, starting from the end of Point Pelee, running southerly to the Dummy lighthouse, thence south-easterly to a point about one-third of the way south from the Pelee lighthouse. The cable will in this way be out of all anchorage ground, and the Dummy light keeper will be able to report immediately accidents, etc., as they are seen from the Dummy.

The following is the Windsor, Ont., 'longshoremen's schedule of rates for 1896: Car sills, 40c. per M.; tamarack and hemlock ties, 2c each; cedar ties, 1¼c each; cedar posts, dry-peeled, 25c. per cord; unpeeled posts, 30c per cord; grape posts, per cord, 40c; telegraph posts, per thousand, 28c; 1 and 2-inch white pine, 23c; 1 and 2 inch Norway pine, 25c; 1 and 2-inch hemlock, 30c; strips, 23c; cut-offs and shorts, 23c; hardwood, 1 and 2-inch, 30c; hardwood over 2-inch, 35c; lath on deck, 5c; lath in hold 6c; shingles, 5c; 1 and 2-inch basswood, 25c; timbers, 35c; timbers in hold, extra 10c; 3-inch plank, 18 feet and under, 30c.

DEATH OF CAPT. JOHN RICE.

The marine fraternity all around the Great Lakes are shocked to learn of the death of Capt. John Rice, who passed away at his home, No. 336 Linwood Avenue. Buffaly, at 3 o'clock Wendesday afternoon. Some time ago he fell down a flignt of stairs at his home and sustained severe injuries. It was known he was still suffering from these, but all his friends counted confidently upon his recovery.

Capt. Rice was about sixty years old, and was one of the best known vesselmen on the chain of lakes, remaining actively in business up to the time of his disablement. He was president of the Mills Dry-Dock Co., and manager of the Red Star Line.

THE LAKE FREIGHT OUTLOOK.

Increasing firmness in grain and ore rates on Lake Michigan, with coal coming more freely to lower lake ports for shipment, promises for the conservative vessel owners the resnlts which they have all along predicted. They seem justified in refusing to charter for the season at either $1 or $1.05 from the head of the lakes, although the ore dealers had definitely decided to pay nothing higher than the latter rate, even on fall business. From present appearances the owners will be fully justified in running their boats wild all season, unless better rates on blocks of ore offers. A large quantity of ore on $1.05 contracts has been taken during the week by Detroit owners.

The supply and demand appear about equal at the head of the lakes, but shipments have not fairly begun, and with tonnage attracted to Lake Michigan by better rates there, it seems that the $1 rate now eagerly paid by the ore shippers must soon advance, as wheat shipments from Duluth, Superior and Fort William continue lively. During the past week the Marquette season rate was fixed at 95c, which is much better than $1 at Duluth. Marquette shippers are just now resisting what seems an inevitable advance in the wild rate from 85c to 90c, two charters at the latter figure having already been made. This advance is the legitimate result of the Escanaba wild rate going to 70c, and ore dealers should prepare themselves for a slow but steady increase in the rate for several weeks to come.

While grain freights appear weaker at Duluth, the rate at which last charters were made being 2⅞c, a number of vessels are still loading there with 3c cargoes, for which charters were made about the time of opening navigation. There is a good movement from Fort William now at 3c, and while the Duluth rate may remain for a time at 2⅞c, there is no likelihood of the drop of another fraction which shippers are trying to force. The supply in terminal elevators at Duluth and Superior was divided as follows on Saturday May 2: Belt line, 1,255,752; Consolidated, 3,844,961; Globe, 3,792,145; Great Northern, 1,338,229; Superior Terminal, 1,331,248; Consolidated B, 271,534; Consolidated H, 77,320; total, 11,911,189; in store at Minneapolis, 18,714,967 bushels.

At Chicago grain rates have advanced until corn is now paying 2c as freely as the tonnage offers, there not being a very liberal supply of boats.

Lumber is stronger all around, and from Duluth rates have advanced over the freights talked of by shippers at and before the opening of navigation.

On coal the figures are as good as could be expected when the slow supply and the large number of boats requiring ballast at this time of year. Soft coal is coming forward much more freely now and vessel agents are no longer put to their wits' end to find cargoes. From Ohio ports to Duluth 35c is being paid, and the same figure rules to Sheboygan, Wis.; Milwaukee coal pays 40c, and hard coal is paying 40c from Buffalo and Erie to Milwaukee and Chicago.

Package freight lines are still as badly embroiled as ever, and the difficulties, if not adjusted, may soon bring on open war, as the Ogdensburg line has taken a position calculated to frighten competitors. Another meeting has been called, but what the result will be is a conundrum.

The Erie canal opened last Saturday with a rate of 3⅞c on wheat, Buffalo to New York. Rates on all commodities show an advance, due chiefly to combination of boat owners.

WRECKS AND WRECKING.

The steamer S. F. Hodge came near sinking in deep water off Middle Island, Lake Huron, but was towed into Thunder Bay, where she sank in shallow water. She was pumped out later and taken to Detroit for repairs. A large leak at her stern is given as the cause of the trouble. Her entire cargo of corn was wet, but as the water was promptly pumped out and the air kept out, little or no damage was caused by swelling.

The four columns of the steamer Argonaut's steeple compound engine snapped suddenly about 10 'oclock Sunday night, when the boat was off Port Washington, Wis.; two men were sent ashore in the yawl for a tug, which towed the Argonaut to Milwaukee. The tug Welcome then took her to South Chicago for repairs. The Argonaut is one of the boats over the ownership of which there is a dispute. She and Rhoda Emily were sold to C. R. Jones and others by J. R. Whiting, at that time manager of the Escanaba & Lake Michigan Transportation Co. The stockholders refused to recognize the sale, and instituted proceedings to annul it, but the purchasers already had possession of the boats, and even joined interference.

The tug Wisconsin, which foundered in Lake Erie last week, was raised last Saturday by the Cleveland Towing Co. and taken to Lorain. Then it was found that a plank, evidently damaged by ice had given way. She will be taken on to Toledo as soon as possible.

The tug Boynton, with a full wrecking outfit, including four big pontoons, has gone to the Sault to raise the Mark Hopkins, which was sunk in collision in that river last season.

The hull and machinery of the tug Gladiator have been raised at the Sault by Capt. Moiles, and taken to Saginaw, where she will be rebuilt at once.

The steamer G. W. Morley, of the Hawgood & Avery Line, bound from Chicago to Prescott, Ont., struck a rock near Clayton, N. Y., which cut her planking through. She set her pumps to work, but finally sank in an exposed place. Wrecking outfits have been put at work on her. She lost her forefoot and part of her garboard strake and wet at least 10,000 bushels of grain.

On Wednesday evening of last week the steamer Fannie C. Hart was slightly damaged by fire while lying at her wharf at Sturgeon Bay.

The loss on the wet corn cargo of the schooner M. McLachlan amounts to $6,621.46. The wet portion was sold for 6c per bushel, a loss of 25c; and all the rest, amounting to 69,370 bushels was assessed 1¼c on account of dampness.

The loss of the Northern Light's deck cargo of flour from fire and smoke, proves not so heavy as as first reported, the loss being about $1,000, instead of $10,000, as first thought.

The old steamer Fountain City was partly burned late Tuesday night, at Sturgeon Bay, while being repaired and put in condition for service. The loss is abont $6,000. She was owned by John Leathem, of Sturgeon Bay, and B. F. Davison, of Chicago.

The 25,000 bushels of wet corn on the Morley was sold. by order of Capt. George McLeod, for 18c per bushel.

Messrs. Parsons, of Buffalo, and Robert Logan, of Cleveland, held a survey on the North Land, and appraised her damages by the recent fire at $13,000.

President Brown and Secretary Keep, of the Lake Carriers' Association, at Washington, trying to hasten the work on the new lock at the Sault.

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

PRESIDENT.

J. J. H. BROWN, Buffalo, N. Y.

VICE PRESIDENTS.

H. H. Brown,	Cleveland.	C. A. Eddy,	Bay City.
J. W. Millen,	Detroit	G. G. Hadley,	Toledo.
W. P. Henry,	Bufialo.	James McBrier,	Erie.
J. G. Kent,	Chicago,	Conrad Starke,	Milwaukee.
G. A. Tomlinson,	Duluth.	F. J. Firth,	Philadelphia.
Frank Owen,	Ogdensburg.		

SECRETARY.

CHARLES H. KEEP, Buffalo, N. Y.

TREASURER.

GEORGE P. MCKAY, Cleveland, O.

COUNSEL.

HARVEY D. GOULDER, Cleveland. O.

VESSEL TRANSFERS.

The following transfers of vessel property have been reported:

Schr. C. N. Ryan, whole, by B. B. Inman, of Superior, to Samuel Neff & Sons, of Manitowoc, consideration not given.

Tug F. H. Stanwood, whole, by B. B. Inman, of Superior, to C. D. Thompson, of Port Huron, consideration not given.

Steamer Chief Justice Waite, whole, by Arthur B. Fry to Detlef Hanson, Tacoma Beach, Green Bay, $15,000.

Steamer City of Windsor, whole, S. T. Reeves to Kirkwood, Sault Ste. Marie, Ont., $4,500.

NOTES.

THE battleship Massachusetts is a record breaker and the Cramps are justly proud.

SOME life-saving stations are being equipped with bicycles for patrol service:

F. MARION CRAWFORD, the novelist and member of the New York Yacht Club, has bought the schooner Ezra Nye, formerly a Sandy Hook pilot boat, and will use her as a cruising vessel. She is a fine little craft, and is to fit out at Pouillon's for the Mediterranean, where Mr. Crawford has a residence. The boat will be kept on the other side. Charles Bertun, the former captain of the steam yacht Nereid, has been appointed sailing master of the schooner.—American Ship Builder.

Am a marine engineer, have been ship-mates with the Penberthy Injector on four or five different boats, and would safely say that they are the best injector that I ever used. H. P., Detroit.

REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR

FOR THE MONTH OF APRIL, INCLUDING STATISTICS OF THE UNITED STATES AND CANADIAN CANALS AT SAULT STE. MARIE, MICHIGAN, AND ONTARIO.

EAST BOUND.	1896.			1895.		
ITEMS.	U. S. Canal.	Canadian Canal.	Total.	U. S. Canal.	Canadian Canal.	Total.
Copper, net tons	3,808		3,808	665		665
Grain, other than wheat, bushels	577,000		577,000	.....		.....
Building stone, net tons	.....		.....	.....		.....
Flour, barrels	269,000	Not open	269,000	36,900	Not open	36,000
Iron ore, net tons	79,316	to	79,316	.....	to	.....
Iron, pig, net tons	.....	naviga-	.....	.....	naviga	.....
Lumber, M. ft. B. M	504	tion.	504	492	tion.	492
Silver ore, net tons	.....		.....	.....		.....
Wheat, bushels	2,092,250		2,092,250	.....		.....
Unclassified freight, net tons	518		518	842		842
Passengers	22		22	37		37
WEST BOUND.						
Coal (hard), net tons	2,620		2,620	.....		.....
Coal (soft), net tons	80,044		80,044	5,145		5,145
Flour, barrels	12	Not open	12	.....	Not open	.....
Grain, bushels	1,109	to	1,109	.....	to	.....
Manufactured iron, net tons	500	naviga-	500	.....	naviga-	.....
Salt, barrels	11,520	tion.	11,520	3,150	tion.	3,150
Unclassified freight, net tons	9,082		9,082	2,181		2,181
Passengers	41		41	28		28
East bound freight, net tons	185,178	.....	185,178	5,992	.....	5,992
West bound freight, net tons	93,996	.....	93,996	7,906	.....	7,906
Total	.....	.....	279,174	.....	.....	13,898

Total craft, United States, 426; total craft, Canadian, ——; total registered tonnage, United States, 458,047; total registered tonnage, Canadian, ——

NOTE.—Canal opened April 18, 1896, and April 25, 1895.

IN THE ENGINE ROOM.

THE ENGINEER IN NAVAL WARFARE.

The North American Review for May contains a most able symposium under the above title, which consists of a discussion of the most important military topic of the age by such eminent authorities as Commodore George W. Melville, Engineer-in-Chief of the U. S. Navy; W. S. Aldrich, professor of mechanical engineering in the University of West Virginia; Ira N. Hollis, an ex-naval engineer and professor of engineering at Harvard; Ira N. Hollis, of the American Society of Mechanieal Engineers; and President George Uhler, of the Marine Engineers' Beneficial Association. The views of the last mentioned we give in part, first, as they seem to furnish to lake engineers and their friends the best preparation for what the others have to sap, The extracts are given with the kind permission of the North American Review. Mr. Uhler says in part:

"The system and licensed tonnage of our merchant marine comprises 6,919 steam vessels, on which serve 21,006 licensed masters, mates, and pilots, with 17,530 engineers for duties relating to the motive power. In our navy, before the ending of the civil war, there were 2,463 deck officers and 2,279 engineers. It will be seen that with the business methods of the merchant service in peace, and for the needs of the navy in warfare, the number of officers below deck is nearly equal to that doing duty above.

"The entire force of merchant engineers, as given above, would not be available in the event of war. Of the steamers there are 8,000 engineers whose licenses do not permit them to take charge of a watch on a sea-going vessel. We have remaining then, about 2,500 steamers with 9,000 engineers. While we have no official physical examinations, it is safe to say that of the latter number at least one-sixth would be debarred, by constitutional impairments or by injuries received in line of duty, from entering the naval service, which receive only men in perfect health. This would leave, as possibilities for war requirements, a force of about 7,500 licensed engineers.

"During the year 1864, the time of its maximum strength the regularly commissioned navy consisted of about 600 vessels, including about 100 on the western rivers. In addition to these the quartermaster's department of the army built, purchased, or otherwise employed about 650 steamers of over 150 tons measurement, and the other military departments had undoubtedly 150 more vessels of such sizes. We have, then, an approximate total of 1,400 steamers. Should we have, in future, both coasts and the lakes to defend, it wonld be but a moderate estimate which would give us 2,500 steamers for all war purposes. In the construction, repair and maintenance of these the engineers of the merchant marine would have a work which would fully occupy their whole force. War would stimulate, not depress, business on the rivers and a part of the lakes, so that the commercial demand for engineers in their localities would be increased rather than lessened.

"Despite the substantial pensions and other benefits whice should result from such a course, the records of our organization show that very few ever enlist in the navy. Its whole system is distasteful to them, exalting as it does one class of officers unduly, while it minimizes the importance of the engineers. Yet we hear constantly that in time of emergency the engineers of the merchant marine will seek these difficult and dangerous positions, whicn in time of peace have no attraction for them, and yet an excess of deck officers is maintained for unexpected emergencies in the navy. while no provision is made for the sudden needs of the engine room.

"Our merchant vessels are not over-crowded with engineers. There are hundreds of tug boats running with a single engineer, and official records show that it is not unusual for one of these men to remain continuously in the engine room for over twenty-four hours, sleeping only when the engines are stopped. This evil has been considered by our association, which proposes that it shall be corrected.

"The man who presumes to know tells us that the locomotive engineer will be transferred to the mercantile marine. Will railroads stop running in time of war? Will not their traffic be increased rather than diminished? The locomotive driver is undoubtedly at the head of the artisan classes, but it is not always requisite that he shall have a trade. It is not expected that hey shall make repairs, since all overhauling is done at terminal stations. On the other hand, the necessities of the merchant service require that those in charge of the engines shall be able not only to manipulate but repair them.

"The only man who seems unaware of these and other engineering conditions, within and without his service, is the sailor or officer of the American Navy. Since he has possessed for a century nearly all of its honors and emoluments, the reform of the naval organization system will never take place with his approval. It must come from Congress.

"The distinguished Engineer-In-Chief of the Navy is not only a friend, but an honorary member of our organization. For years Commodore Melville has studied the problem as to the most effective use upon force in war and our executive officers have confered with him repeatedly in regard to it. There can be no better man than he, with his years of experience and his wide knowledge to suggest a measure which shall utilize for the national defense, the Marine Engineers' Beneficial Association, a body which is powerful both in number and influence. The full measure of its patriotism and of its regard for law and order has been signally shown on more than one occasion. The maritime bodies of Cnicago know that it was the conservatism of the Marine Engineers which prevented the great strike of 1894 from being a success, and which saved that municipality from being turned over to riot. In conflict between labor and capital our people have invariably won. Nearly all of onr people have trades; and if it shall ever be necessary for them to leave their ships, they can earn a living elsewhere and prolong the contest indefinitely.

"The force of the Naval Reserve, as officially stated, is something less than 5,000 men. The rosters of the organization of the various States show that but three engineer officers have been authorized in the entire complement; and yet the Naval Militia receives national bounty, and is under the control of the Navy Department. A naval reserve cannot be efficient which fails to recognize the engineer as an integral part of its force. If, in peace we are denied entrance to this body, wherein are we fitted for usefulness in war?

"Signal failure has always resulted from the attempt of others to do the work of naval engineers, and yet there are too few of the latter in our service. They have been crowded out of our war ships to make room for an excess of deck offers. Our organization now realizes the power which it possesses. We propose that Congress, and not the regulations prepared by a few sailors, shall settle the question as to how we shall co-operate with naval engineers. This is under discussion by the 100 local associations which compose our membership.

"There should be extended to the navy the system of the Merchant Marine, which gives engineers immunity from the interference of mates on deck. The directors of our corporations find this necessary; with this system in our navy we should hear no longer the complaints as to the unsatisfactory organizations of our warship."

Mr. Uhler concludes with a few comments on the now pending legislation in Congress, and especially commends the Wilson-Squire engineering and educational bill.

Engineer-in-Chief George W. Melville opened his paper with quotationr from high English, French and American engineering authorities, printed within a fortnight of each other, all dwellings upon the growing importance of the naval engineer's duties. He continues: "This is the age of the engineer, and he will be the great factor in modern warfare, whether the contest be waged by land or by sea. The rapidity with which the division of an army can be moved by mechancal means may decide the destiny of a nation.

"The efficiency of the modern battleship, which is a series of separate compartments, must depend upon others beside the commander. It will be influenced by the endurance of the firemen behind the ram, that unseen stoker whose station is in front of the roaring furnaces. The training of men around the decks will be a simple matter compared with the organization of an efficient force in the engine and fire rooms. The trained engineer is a combatant in naval warfare, for he is not only exposed to all the dangers from the ram and the torpedo, but also to the perils that confront him in the management of boilers and engines.

"Advantages have been given me to study the question of how our engineering personnel should be educated. It is imperative that they receive military training, but the safety of our fleets demand that all shou'd obtain more engineering instruction than is now given at the Naval Academy, when the cadets assigned to the Engineer Corps are given but one year in marine engineering. The co-operation of the many scientific colleges and schools should be secured without delay."

Commodore Melville concludes as follows: "In building battleships without providing for a trained and sufficient corps of naval engineers, there is a royal road to disaster and defeat. There is a path to victory found by recognizing the fact that the advent of the engineer, with his industrial methods, is a direct gain to the efficiency and glory or the naval service.

"If the engineer is not worthy of official recognition, and of some of the emoluments of the naval service, as he stands in that magazine of death, with clear train and steadfast courage, holding in his firm grasp, the heart strings of the ship, then a new lexicon is required to define his worth. If he falls beneath a maze of wrecked machinery or within a blast of scalding steam, or sinks to ocean depths in the closed compartment, either he dies as heroes die, and his career has been honorable, or the world needs revision."

THE GOODRICH LINER IOWA.

The passenger steamship Iowa, whicn is being rebuilt for the Goodrich Transportation Co., by Burger & Burger at Manitowoc, will be placed on the Chicago-Milwaukee run as soon as completed, which will be some time in June. She will be one of the most elegantly fitted steamers upon the lakes, having seventy-six staterooms, capable of accomodating 156 passengers. Twenty-four of the staterooms will be on the hurricane deck, giving an unobstructed view of the lake from both sides. The new steamer will be 215 feet in length and thirty-five feet wide on the main decks. A deep steel plate will extend fore-and-aft and close under the beams, the whole forming a very strong truss, all under the cabin deck, stronger and superior to the old style arch. The hull will be sheathed with iron, thus enabling her easly to run through ice during the winter months. The engines will be of the compound type, with 950 horse power. Two boilers of the Scotch type with a capacity of 150 pounds working pressure will furnish the necessary steam.

Past National President George P. Wilson, of the Marine Engineers' Beneficial Association, is now with the Magnesia Sectional Covering Co., with headquarters at Philadelphia, Pa.

With each copy of Beeson's Inland Marine Directory for 1896 sold by us, we will furnish FREE a copy of "THE RECORD Directory of Masters and Engineers."

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD by George F. Stone, Secretary Chicago Board of Trade, May 2 1896:

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Albany	.....	30,000	35,000	.....	.....
Baltimore	34,000	692,000	94,000	42,000	.....
Boston	83,000	135 000	13 000	14,000	20,000
Buffalo	1,209,000	894,000	168,000	90,000	144,000
" afloat	.....	.....	.....	.....	.....
Chicago	15 817,000	5 725,000	2,530,000	363,000	17,000
" afloat	.....	.....	.....	.....	.....
Cincinnati	8,000	2 000	20,000	1,000	23 000
Detroit	261,000	21,000	12,000	13,000	2,000
" afloat	.....	.....	.....	.....	.....
Duluth and Superior	11,911,000	95,000	388,000	182 000	412,000
" " afloat	.....	.....	.....	.....	.....
Indianapolis	79,000	17 000	.....	.....	.....
Kansas City	1.144,000	164,000	52,000	29,000	.....
Milwaukee	.....	2,000	18,000	346 000	31,000
" afloat	53,000	.....	.....	.....	.....
Minneapolis	18,715 000	57,000	735 000	89 000	61,000
Montreal	844 000	15,000	432,000	6 000	64,000
New York	202.000	556,000	1.431,000	9,000	1.000
" afloat	.....	.....	.....	.....	.....
Oswego	.....	54,000	.....	.....	16,000
Peoria	15.000	36.000	271.000	3 000	.....
Philadelphia	105,000	125.000	80.000	.....	.....
St. Louis	1,041.000	319 000	187,000	3.000	.....
" afloat	.....	138.000	.....	.....	.....
Toledo	629,000	193,000	51,000	128,000	.....
" afloat	.....	.....	.....	.....	.....
Toronto	76,000	22,000	103.000	.....	26 000
On Canal	205,000	142,000	368.000	.....	36,000
On Lakes	2,295 000	1.706,000	1,162.000	106 000	285.000
On Mississippi	.....	179,000	90 000	.....	.....
Grand Total	55.519.000	11.319,000	8.240,000	1,424 000	1,138,000
Corresponding date 1895	62,196,000	9.354 000	5.816 000	127,000	402.000

ASHTABULA'S INCREASED FACILITIES.

The Ashtabula Beacon, in a recent issue, summarized as follows the increased facilities for discharging and loading cargo at that port:

Ashtabula's facilities for the handling of ore and coal this year are in marked contrast to those of last year. From year to year the railroad companies interested at this port have spent thousands of dollars in making improvements and this year is no exception. A brief summing up of the different improvements being made here will give the people an idea of what is being done and will show that Ashtabula is not going to be behind, but will retain her distinction as the greatest ore receiving port in the world and rank high in the shipping of coal.

On the Lake Shore side a long stretch of dock has just been completed and will probably be used by the Minnesota Transportation company in connection with their docks on the opposite side of the slip. On this dock the Lake Shore Railroad company will erect 10 or 12 Brown hoisting machines. The Brown machines have been in use on the harbor docks for years.

At No. 5½ dock on the Lake Shore side the Youghiogheny River Coal Company are having built a mammoth car-dump machine, which will make a great saving of time in comparison with the machines formerly used on this dock. Lake Shore dock No. 1 will also be fitted out and the old crane machines replaced with new ones of a different make.

Last year eight cantilever conveying machines were built on the P. Y. & A. dock and this spring two more have been added to the same dock. Their speed for unloading is well known.

At Laird & Sons' shipyard a large scow is being built for M. A. Hanna & Co., and will be used for the fueling of boats. These improvements with the 20-foot channel and the breakwater that the government is expected to build will bring more trade to this port and advance Ashtabula' business interests more than ever before.

TELEPHONING BY WATER.

The United States Lighthouse Board have carried out experiments which demonstrate that telephoning can be carried on at sea with vessels near shore. An iron-armoured submarine cable was laid from Sandy Hook at the power station of the Gedney Channel Electric Buoy System, out to the Scotland Lightship, five statute miles, of which one-half mile was underground across the Hook. A copper-wire gridiron arrangement was fixed at the end of this cable, and by this and other methods, an electrical diffusion area was created, different electrical potentials, sufficient for practical purposes, being found at any two points 100 feet or so apart on the water's surface. The lighthouse tender Gardenia, suitably equipped with transmitting and receiving circutts, found that there were over sixteen acres of water around the lightship throughout which telephonic conversation could be carried on with Sandy Hook Station, and while under full steam. As the Gardenia has a wooden hull without sheathing, two plates of sheathing metal seven feet by three feet were attached to bow and stern, and wires were run from them to the pilot-house. The plates were about 113 feet apart and sufficient potential difference existed over the sixteen acres to operate the telephone well.

The battle ships Indiana and Massachusetts are wonderful boats. There is not the'r superior anywhere. They are the best in the way of battle ships that have ever yet been launched. They really put the Cramps in the lead as builders of war ships. Is this not a tribute to American energy, skill, and genius in ship building that must be subscribed to by all maritime people? The cost of these vessels will be pointed out as being against them. But it is only a short time ago it was claimed that such vessels could not be built in the United States at any cost. And in war vessels the cost is of minor importance where the best generally means the most successful, and also the cheapest in the end. Foreign nations buying war ships should look at the American kind. They are models which excite the envy of other builders. As the predictions over the inability of the Americans to build the best war vessels have turned out false, it may be taken for granted that the predictions as to the inability of the American to build a merchant marine will be no truer.—New York Maritime Register.

NOTICE TO MARINERS.

FOG BELL AT PORT DALHOUSIE.

A bell has been attached to the platform of the range light tower near the outer end of the east pier at Port Dalhousie, Lake Ontario, and will be rung by hand, as a fog signal, in reply to fog signals from vessels desiring to make the canal.

THE WRECK OF THE ADAMS.

The obstruction on which the barge Teutonia struck ast week proved to be the wreck of the schooner G. W. Adams, sunk by ice last fall. Capt. F. B. Haekett has placed over the spot a float with two bright lights, which will be left there until the wreck is removed. The wreck is two miles west from Colchester and four and one-half miles north-west from Colchester light.

NOTES FOR NAVIGATORS.

Supt. G. A. Marr, of Portage Lake Canal, reports that the annual dredging in the upper canal has been completed and that there is now a 150-foot channel from Portage Entry through to Lake Superior.

Considerable dredging has been done at Sandusky and there is now seventeen feet of water at the B. & O. coal and ore docks.

COLONEL LYDECKER IN CHARGE.

General Craighill, Chief of Engineers, U. S. A., has assigned Lieut. Col., G. J. Lydecker, already stationed at Detroit, and in charge of improvements on the east coast of Lake Michigan and the West coast of Lake Huron, to the additional duties of the conduct of the 20-foot channel and Sault canal improvements which were in charge of the late Gen. O. M. Poe. The assignment has been given as temporary, but as the duties of Gen. Poe's force are in a manner temporary, the arrangement may be considered as permanent. The offices will now be consolidated, and the force at Lieut. Cavanaugh's offices will doubtless be transferred to the offices of Col. Lydecker in the Telephone Building, Detroit. Col. Lydecker will also have charge of the sale of engineers charts.

MARYLAND AND DELAWARE CANAL BILL.

Senator Elkins, of West Virginia, has introduced in the Senate a bill to provide for the construction of the Maryland and Delaware Free Ship Canal, as a means of military and naval defence and for commercial purposes. This canal, connecting the waters of the Chesapeake and Delaware Bays, is not to be less than 100 ft. wide at the bottom, 30 ft. below mean low water and 178 ft. wide at low-water level, and sufficient to allow the passage of vessels of the largest size in use in ocean traffic. The Secretary of War is authorized to appoint a commission to select the most desirable of the three central routes known as the Southeast Creek route, the Centreville route and the Queenstown route, An appropriation of one million dollars is carried in the bill.

NEWLY ENROLLED TONNAGE.

Following is a list of lake vessels to which official numbers and signal letters have been assigned by the Commissioner of Navigation, for three weeks ended April 25:

Official No.	Rig.	Name.	TONNAGE. Gross.	Net.	Home Port.	Where Built
107,219	Schr.	Armenia	2,040.76	1.919.78	Pt. Huron	W. Bay City
3,678	Schr	Bertie	43.95	35.77	Detroit	Mt. Clem'ns
3,679	St. s.	Bloom'r Girl	95.43	64.85	Chicago	Ludington
127,131	St. s.	C'y of Bangor	3,690.90	2,976.38	Pt. Huron	W. Bay City
77,216	St. s.	J. T. Martin	47.83	32.53	Pt. Huron	Port Huron

DETROIT RIVER MARINE POSTOFFICE.

A number of our subscribers have already directed that their addresses be changed, upon the opening of navigation, so that THE RECORD will be sent to them in care of the vessel on which they will be engaged, via the Detroit River Marine Postoffice. This river service will be continued this season, and made even more efficient than last year, and we call the attention of our subscribers to this arrangement as according a certain and reasonably prompt delivery of THE RECORD, week by week, to those engaged in the traffic up and down the lakes.

THE LIBRARY TABLE.

Professor James T. Bixby, Ph. D., whose portrait forms the frontispiece of Arena for May, contributes a paper to his number on "Professor Roentgen's Discovery and the Invisible World Around Us." Other contents are the second part of Dr. J. Heber Smith's "Man in His Relation to the Solar System;" "Why the West Needs Free Coinage," by C. S. Thomas; "The Land of the Noonday Sun," continued, by Justice Walter Clark, LL. D.; "America's Relation to England," Eveleen Laura Mason; and a number of other able papers on various subjects of interest, besides valuable literary contributions in short and serial form.

An able and suggestive symposium under the title of "The Engineer in Naval Warfare" is presented as the opening feature of the May number of the NORTH AMERICAN REVIEW, the contributors to it being such eminent authorities as Commodore George W. Melville, Engineer-in-chief of the United States Navy; W. S. Aldrich, Professor of Mechanical Engineering in the University of West Virginia; Ira N. Hollis, Professor of Engineering in Harvard University; Gardiner C. Sims, of the American Society of Mechanical Engineers; and George Uhler, President of the Marine Engineers' Beneficial Association. The noted French astronomer, Camille Flammarion, writes most interestingly of "Mars and Its Inhabitants," and in "Men Who Might Have Been Presidents," Joseph M. Rogers of the Philadelphia Inquirer, throws some important light on the presidential elections of the past. "Western Feeling Towards the East," is succinctly portrayed by Senator William V. Allen, of Nebraska. "The United States and Great Britain; A Reply to Mr. David A. Wells," affords Mayo W. Hazeltine opportunity to criticize the former's statement of facts set forth in his article in the April Review. Other topics dealt with are: "Constitutional Suffrage for Women," by W. S. Harwood, "Great Britain's Service to Civilization," by Capt. A. S. Crowninshield, U. S. N.

FOUR WELL-KNOWN BROTHERS.

Capt. William T. Brown, formerly in command of the steamer Oscar T. Flint, and a brother of Capt. George A. Brown, of the steamer Arrow, has been appointed pilot of the steamer North West. Capt. Brown has three brothers, each of whom are well known along the chain of lakes as vesselmen, having followed the lakes from boyhood. Capt. Wesley Brown, formerly in command of the steamer Centurion and a part of last season master of the North West, is now superintendent of the Northern Steamship Line. Another brother, John, is master of the steamer Margaret Orwill. Sherman Brown, the youngest of the four brothers, will not sail this year, but will remain ashore at Detroit, where he is engaged in business with his father-in-law.—Sandusky Register.

MOVEMENTS OF FRIEGHT.

Marquette—Shipments of ore for the week ending May 2 were 55,332 tons, and of lumber 1,100,000 feet.

Ashtabula—Ore receipts for April, 27,583 tons, as campared with 1,905 tons in 1895. Coal shipments were 42,417 tons, as compared with 10,445 tons in 1895.

Buffalo—There was on dock here May 1, 16,317 tons the smallest quantity reported for a number of years.

Ashland—Shipments for the week ending May 2 were 15,000 tons of ore and 1,600,000 feet of lumber.

Gladstone—Shipments for week ending May 2 were: Ore, 6,000 tons; grain, 332,000 bushels; lumber, 1,500,000 feet; cedar, 51,000 pieces; flour, 50,000 barrels.

Imports at the port of Tacoma, for April, 1896, were as follows: Oriental merchandise, per N. P. steamship Strathleven, $123,000; previously reported, $775,000; total imports for four months, $898,000; imports for same period last year, $2,052,250. Exports were as follows: 125,390 bu. wheat to Africa, $62,695; 35,392 barrels flour to Africa and China, $106,176; 7,222,358 feet of lumber to Australia and coast ports, $69,343; 29,825 tons coal to San Francisco, $90,700; merchandise to China and Japan, $88,451; merchandise to British Columbia, $30,131.51; total, $447,496.57; previously reported, $1,796,303.97; total exports four months, $2,243,800 54; exports same period last year, $1,690,366.93.

Deep sea arrivals for April, 31; deep sea departures, 36; inward registered tonnage, 37,740; outward registered tonnage, $39,847; inward cargo tonnage. 2,450; outward cargo tonnage, 45,837.

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CLEVELAND, O., MAY 7, 1896.

THE manner in which United States engineers on the Great Lakes are laying out unexpended money placed at their disposal by former appropriations indicates their firm faith in the passage of the pending bill. The money is being used on structures planned for permanency, instead of on the shifty, piecemeal systems to which the engineers have for years been compelled to resort. The real economy of the continuous contract system will be shown more clearly than ever before the next fiscal year is ended. The money is placed in the hands of men who are by condition and training superior to party and politics, and thus in safer care than most appropriations have the good luck to enjoy.

THE ice at Buffalo has done much to prove the truth of the claim put forward by the United States engineers and others who favor the construction of a dam at the foot of Lake Erie. The ice gorged at the head of Niagara River, and backed the water up so as to meterially relieve the situation in Buffalo harbor. It also indicates that the proposed dam should be of a crescent shape, and that it should come out to Horseshoe Reef in the center. The dam would be a little longer, but would be all the more solid, and perhaps less expensive to construct. Any locks or weir gates should be on the Canadian side, so as to provide abundant protection for Squaw Island and the Black Rock regions. The Canadian shore is somewhat higher, and not subject to the disasterous floods which occured on the Buffalo side last fall.

THE system of managing fleets on an economical basis is being reduced to an art. Two supply stores have been established at the Sault Canal by Pickands, Mather & Co., from one of which the ships of the various fleets under their control are furnished with groceries and other eatables. At the other store are obtained supplies of cordage and other necessities of the ship chandlery order. The place is most convenient for putting such supplies on board the boats without delay and while purchases will be made as usual at the port of cheapest supply, they will be bought in large bulk, and transported to the supply stores by the company's boats without any freight charges except for handling. It is probable, that in addition to the greater convenience of the system, a saving of at least 40 per cent will thus be effected. This arrangement, with the company's well known system of fueling stations and scows along the route, reduces operating expenses to a minmium. The boats which will primarily enjoy the benefits of are about 63 in number, employing nearly 1,100 men, and the supply station will probably in time become self-supporting, so far as operation is concerned, by dealing with outside boats.

SIGNALLING IN THICK WEATHER.

The select Committee of the House of Commons has finally compiled its report on the rules of the road at sea, adopted by the International Maritime Conference, held at Washington. There has been, as everyone knows, a great deal of hesitancy shown by Great Britain and Germany in officially approving these international rules, particularly Article 15, prescribing signals for all vessels under way. From the majority report of the committee it would seem that the chief objection on the part of ship owners of Great Britain has been that they thought they had not been consulted frequently enough. The report states that the Royal Navy officers who had been examined were unitedly in favor of the adoption of the new rules, though expressing at the same time a wish to to simplify them and reduce their number, if that could be effected by international arrangement. They advised that it was unnecessary to have separate signals for a vessel towing, a telegraph ship, and a ship not under command, but that one signal might be economically used for all these three cases, inasmuch as the special precautions in passing ships so situated would systematically be the same.

"We consider," says the report, "that the opposition to any new rules at all is, to some extent, to be accounted for by the fact that the feeling appears to exist in ship-owning circles that they ought to have been more fully consulted before the Board of Trade committed itself to an approval of the scheme. * * * It becomes the duty of your committee, under the circumstances, to ascertain and judge for themselves of the grounds upon which the objections rested; and though the matter is one in which the utmost respect should be paid to expert opinion, it was possible * * * for persons not possessing special knowledge to form upon this, as on other technical subjects, a definite judgment of their own."

While the rules for the Great Lakes form a code entirely separate from those under discussion, the two are based upon identical principles, and the subject of signals of a communicating character in fog was very widely and so warmly discussed just before the enactment of the White law—while, in fact, that bill was being drafted. The British committee reports that those who favor the new rules urged that under the present rules there is no provision for vessels in a fog, situated in positions of exceptional difficulty, conveying the nature of that difficulty to other vessels. Such is the case with vessels anchored in a fairway, or vessels towing other ships, vessels not under command, or vessels laying cable. The committee was informed that the use of some special sound signal for the use of a vessel placed in a position of exceptional difficulty would be desirable.

"Upon the other hand," says the committee, "the objection pressed upon us may be grouped as follows:

1. That masters and officers might find difficulty in acquiring a sufficient familiarity with the new rules to be able to apply them on the spur of the moment in an emergency.
2. That, in cases where a large number of vessels are close together in a fog, the number and variety of sound signals will perplex the officer on the bridge.
3. That, notwithstanding the rule to the contrary, navigating officers would be encouraged by these new rules to run rapidly in a fog, because, in their desire to make fast passages they would be tempted to rely on the sound signals.
4. That all sound signals are liable to be deceptive in a fog, from the impossibility of determining with accuracy from what point of the compass the sound proceeds.
5. That inasmuch as the new signals consist of various combinations of long and short blasts, coupled in one case with the ringing of a bell, it would be possible that signals from two or more different vessels might be heard together or so following one another as to cause a listener to mistake entirely the signal given. That, owing to this, confusion would arise, and that confusion necessarly means an increase of danger.

The committee, acting as a non-technical jury to judge of and reconcile the varying opinions of experts, proceeds to set aside the objections, which it says, "are founded partly upon apprehensions which all persons of good sense are equally capable of appraising." This seems to mean that the fears are treated as those of persons who crawl under their beds during a thunder storm, or seek their cellars when an unusually dark cloud appears in the sky. The committee, therefore, coolly sits down on their objections as follows:

"We do not think there will be any difficulty in learning and practically using the the new rules; no difficulty arises in learning and applying other far more difficult rules. Nor do we think navigating officers would be tempted by the new rules to proceed more rapidly in a fog. If they do so, it must be because a mastery of these rules would impart to them a sense of greater security which seems hardly consistent with the earlier objection. But, in fact, any such attempt would be in violation of another rule, Art. 14, which embodies the practice of all prudent seamen. There seems to be no doubt that sounds are deceptive in a fog, particularly when land is close; it is not so clear whether they are equally deceptive in the open sea. Also, there is no doubt that there would be confusion if a number of vessels were sounding different signals at the same time, and it is possible that one sound might run into the other and cause a misunderstanding. The point is whether such a state of circumstances would increase the danger. We do not consider that it would. Under the present rules when there is a crowd of vessels in a fog, all of them sound their signals quite as loud and long and often as they would under the new rules, but at present there is only one signal for fogs, which conveys nothing but that a ship is in the neighborhood, and an indication, more or less reliable, of the direction in which she is. Under the present rules an officer on the bridge, hearing the signals of fifteen or twenty-five vessels close to him should, undoubtedly, stop his vessel. Exactly the same thing would be his duty under the new rules. Upon the other hand, when two vessels are alone in a fog, or so small a number of vessels are together that their signals can be distinguished, the addition of the new rules would prove very useful."

Two members of the committee, however, have submitted minority reports; one is Sir George Baden-Powell, who suggests that masters who do not habitually sail in regions of frequent fog would be likely to grow rusty upon such an extended code, and would be uuder the necessity of referring to printed instructions at critical moments; also that it will be difficult to distinguish between the separate signals with certainty, on account of similarity in tone, and that in freezing weather it would be hard to distinguish between long and short blasts. When a man has also the management of his own ship on his mind, he is at a disadvantage as compared with a trained signal officer on a naval vessel.

It must be admitted, even by its best friends and advocates, that the plan of establishing such an uncertain means of telegraphing in fog involves chances which are likely at times to develop into great risks. The objection that the master who is obliged to hurry may often be tempted to make too liberal an interpretation of signals as he thinks he hears them, is certainly a very forcible one, and is by no means overthrown by the committee's comment that he must of necessity come under Art. 14 at once. The old rules gave a master no discretion; whereas under the new rules, he is given more latitude in judging of danger, and circumstances would often occur when a master, in his his desire for fast time, would be tempted to "take a chance." Then, in case of collision, the master, when on the stand, would testify that he heard a signal which masters of all steamers in the vicinity deny having blown. The courts would be put to their wits' end, because one master could not be blamed for moving on a signal which proved to have been the combination of whistles blown from two vessels. When a master hears plain fog signals, he must stop or move very closely, but fog belts will in all probability generate some marvelous combinations when the new code comes into use in thick weather on crowded waters.

GENERAL COUNSEL Harvey D. Goulder, of the Lake Carriers' Association, has drawn up a masterly brief in opposition to the adoption of the Woodman and Mahany bills forbidding the employment of alien seamen, firemen, deckhands, etc. He points out that the Great Lakes are not interior waters, but a part of the country's boundary, and gives many excellent reasons for showing that reciprocity, and not high protection, should be our policy with Canada. Laws enacted in this country, and especially relating to foreign vessel property, are not perceptibly felt by Canada, while the same laws, enacted by the Dominion, with reference to the United States tonnage, prove a serious hardship. This shows that it is to the interest of both countries to co-operate rather than to throw obstacles in each other's path. Broad and liberal views on all questions affecting international commerce should be the policy hereafter to rule.

Atlantic coast sailors are demanding higher wages for long voyages.

SHIP BUILDING AND REPAIRS.

TEN MILLIONS IN NEW BOATS.

The tabulated statement of ship building in American yards, which accompanies this issue of the RECORD in supplement form, will perhaps give the friends of lake shipping an adequate idea of the importance of the fresh water fleet in the commercial world. The ships which will certainly go into commission this year, added to those already ordered for delivery as soon as possible, but which will probably not be completed until winter, give at moderate valuations a total of $9,837,000. The fleet includes a number of passenger steamers, tugs, one large car ferry, and other craft not calculated for bulk freight; but exclusive of these, the capacity of the legimate bulk freight carriers is estimated at 170,200 tons on fifteen feet draft for a single trip. This estimate is conservative rather than open to the charge of extravagance, and the fact that the addition of so heavy a tonnage to the lake fleet has not had any bearish effect on freights, except in theory, is sufficient evidence of steady and lasting commercial growth.

The values of ocean-built tonnage of course far exceeds the lake total of about ten millions, but this is due to the battleship construction, each of these great structures costing about $3,000,000, The salt water merchant fleet seems to have a healthy growth, however, and with the appreciation of its importance that is shown in Congress, there should be no fears for the future of the American Merchant Marine.

TWO LAUNCHES ON ONE DAY.

The Globe Iron Works Co., Cleveland, have issued very handsome invitations to the launch of the Sir Henry Bessemer, the first of the Bessemer Steamship Co.'s fleet, at their yard, foot of Taylor street, Saturday afternoon, May 9, at 3 o'clock sun time. The Bessemer is in nearly all respects, a sister ship of the steamer Coralia, which has just made a new cargo record. At the Cleveland Ship Building Co.'s yard the steamer Queen City, building for the Zenith Transportation Co., Duluth, will be launched about the same hour. A small strike of laborers occurred this (Thursday) morning at the Cleveland yard, but the Queen City is so well forward that this will, it is thought, hardly delay the work.

The steamer E. W. Oglebay, building by F. W. Wheeler & Co., West Bay City, will be launched next Saturday, May 16. The City of Bangor, built for the Eddy Bros. at the same yard, left Bay City on her initial trip Tuesday. Mr. and Mrs. C. A. Eddy, and Mr. and Mrs. N. A. Eddy, going to Duluth on her. It is expected that she will carry 3,200 gross tons on a draft of thirteen feet. Her deck is clear of houses back to the engines. Officers', guests' and crew's quarters are all aft. The City of Bangor is commanded by Capt. Wm. Cavers, with John Burns as first mate and George M. Tilton chief engineer.

The tug-yacht Edna G., building at the Cleveland shipyard for the Duluth & Iron Range Railroad, will be ready to go to Two Harbors about the 25th inst. She is rapidly nearing completion and is now being painted inside. Two of her most noticeable features are the large engines and ample engine room.

Laird & Sons, of Ashtabula, set to-day (Thursday) for launching the large fueling scow they have been building for M. A. Hanna & Co. The scow is equipped with two screws for self-propelling. It is said that a fast system of handling coal has been designed for her.

The first launch of the year at James Davidson's shipyard, West Bay City, occured last Saturday, when the schooner Armenia was placed in the water. The launch was delayed nearly two weeks because of the fire in the shipyard, which scorched her a trifle. On the evening of the launch, by the way, the yard had another narrow escape from burning. Fire broke out in the paint shop, in a box of waste and rags probably originating spontaneously. It was discovered at once, and the box was carried out of the building. Had the fire been allowed ten minutes start, all the buildings adjacent would have been destroyed, as the place was filled with inflamable materials.

Abram Smith & Sons, of Algonac, announce that they will have their new modern schooner launched and ready for sea by the middle of the month. She measures 210x37x14 ft. and is built entirely of white oak. She will be schooner rigged, and will be equipped with a steam windlass and capstan, as well as a deck hoist and two 8-inch pumps. She has been named the Vinland, and will tow behind the steamer Viking.

GENERAL REPAIR WORK.

The steamer Simon J. Murphy is in the Ship Owners' dry-dobk for bottom repairs. The damages appear to have been exaggerated in the daily press. Five plates which came off and the sheathing which covers them must be replaced. The repair bill will amount to about $2,000. Mr. Robert Logan is looking after her. The A. P. Wright is also at the Ship Owners' dock. The Samuel Mather, which struck at the Sault, is in the Cleveland dock. Eight plates had to be removed and her stay in the dock will be about a week. She will get out Friday night. Joseph R. Oldham is inspecting the job.

MILWAUKEE.—The steamer Lora has been given some extensive improvements, including new plank sheer, 'tween-deck stanchions and quick work, part new cabin roof, a sky-light in the after cabin, new fender strakes, and a solid rail around the promenade deck. She has been painted white, with a cream colored stack. The schooner Twin Sisters has been docked here to locate a leak.

BUFFALO.—The steamer C. F. Bielman has been getting a new wheel. The W. L. Scott was in for repairs to her stern-bearing.

DETROIT.—The Hodge was placed in the upper dry-dock Monday for examination. It was found that the leak which almost caused her to sink in deep water was the working loose of the packing around the stern pipe. Her wet corn was in good shape when taken out.

SUPERIOR.—The steamer J. J. McWilliams had to make repairs to her high-pressure cylinder, which gave out here. The steamer Chili smashed her rudder last Wednesday and was delayed two days for repairs. The Simon Langell disabled her machinery and repaired at the Clyde Iron Works.

CHICAGO.—The steamer F. & P. M. No. 1, Capt. Chas. Thompson, recently purchased by the Hurson Transportation Co., is running between Milwaukee and Chicago in connection with the steamer City of Fremont. The ship joiners are on board the No. 1 making alterations and improvements. The saloon cabin will be rearranged, especially with a view to the convenience os the travelling public. An elaborate after cabin will be put in, and a wash room and smoking room go in forward. She will also receive a new pilot house and texas with captain and mate's quarters. Her hull will be painted green and her upper works white. The No. 1 has been so well kept up and is in such good shape at the present time that she appears to be quite a recently built steamer. The City of Fremont is also having her cabin facilities enlarged.

Capt. James S. Dunham is giving the schooner America extensive repairs and a thorough overhauling.

Capt M. Abrahamson has given the schooner Radical new stanchions on her starboard bow, new frames on her port bow, and new plank from the light water mark up, and re-calking.

At Miller Bros.' shipyard the U. S. tug Charles Williams is in dock for repairs and re-calking. The schooner W. A. Goodman has received a new mizzenmast.

At the Chicago Ship Building Co.'s shipyard the steamer Soo City is in dock for a new stern bearing and repairs to her shoe and rudder.

REPAIR NOTES.

The stermer Maud Preston has been docked at Toledo for a spring overhauling and necessary repairs.

The little ferry steamer Gracie Barker, which burned last fall and was rebuilt during the winter, was launched last Saturday.

The Langell Boys was picked up disabled by the Glidder on Lake Huron and is now repairing her engines at Port Huron.

A collapsing derrick at Port Huron let a heavy boiler fall upon the new tug building for Loud & Sons, of Osceola, last week. About $300 damage was done.

The tug Carrie, which the Booth Packing Co. built during the winter, was launched at Bayfield, Wis., Monday.

A short-lived strike occurred last Friday at the American Steel Barge Co.'s yard, the dry-dock men demanding an increase of from $2.50 to $2.75 per day. The demand was granted, the company reserving the right to put the men on piece work at any time. About 200 men were affected.

Improvements in the tug Barnes at Manistee cost $1,000.

The steamer Charles Reitz has been receiving repairs on the floating dry-dock at Manistee.

The steam barge Dan Kunz will probably be transformed into a sand sucker at Detroit.

Capt. James Davidson has already set about repairing his burned machine shop at West Bay City.

The steamer D. F. Rose is getting a new deck and other repairs at Gilmore's dry dock, Toledo.

The schooner Delaware has been in Gilmore's dry-dock, Toledo, receiving a thorough recalking.

The barge Emerald received some calking and painting and had a leak stopped at Sturgeon Bay last week.

The schooner City of Grand Rapids has been getting a new centerboard box, hatch coamings, and some new deck at Racine.

The schooner J. S. Richards has received about $600 in repairs at Toledo. She had her floors calked, sister keelsons put in, and other repairs.

The boiler recovered by the schooner Dewey from the wreck of the steamer Johnson, near Kenosha, is to be placed in the tug Com. Jack Barry at Chicago.

The barge Unadilla is being repaired at the Homer & Daniels dock in Tonawanda. She will be fitted up with a new deck, a new cabin and new masts. She will be ready to go about May 15.

When the steamer George Farwell was placed in the Detroit dry-dock it was found that she had sustained some very bad cuts in the bow from the ice last fall. Several new planks and a new forefoot will be put in.

SHIP BUILDING IN GREAT BRITIAN

According to the returns complied by Lloyd's Register, and just received, there were, excluding war-ships, 400 vessels, of 769,264 tons gross, under construction in the United Kingdom at the close of the quarter ending 31st March last.

The present figures exceed those reported twelve month ago by about 113,000 tons. At the end of December last there were 377 merchants vessels, of 711,562 tons gross, and at the end of September there were 356 vessels, of 716,575 tons gross, and at the end of June last there were 339 vessels, of 707,079 tons gross, under construction. There were at the end of March 68 warships, of 182,805 tons displacement, under construction at private yards, so that altogether there were 489 vessels, of 952,969 tons, under construction at the close of March.

The following coast builders report nothing doing at present: Continental Iron Works, Brooklyn; J. C. V. Minott, Phippsburg Me., International Steamship Co., Portland, Me.; McBride Bros., Philadelphia; Wm. E. Woodhall, Baltimore; N. H. Timbs, Fairport, Va.; Maryland Steel Co., Sparrow's Point, Md.; Portland Steamship Co., Portland, Me.; Oregon Railway & Navigation Co., Portland, Ore. Clay & Johnson of Kissemee, Fla., and S. Gildersleeve & Sons, Gildersleeve, Conn., built small barges, Chas. J. Rossiter & Co., Baltimore, have been buildiug a set of facts for the United States Revenue Steamer Wm. H. Windom.

DREDGE APPOINTMENTS.

Appointments for George H. Breyman & Bros., dredge fleet have been made as follows:

Dredge No 1—Captain Geo. Grierson; runner, Dougal McLaughlin; cranesman, Frank Beade.

Dredge No. 2.—Captain, Charles Rogers; runner, Eddie Gorman; cranesman, Fred Parrow.

Dredge No. 3.—Captain, Thomas Murphy; runner, Robert Foster; cranesman, William Constantine.

Dredge No. 4.—Captain, John Finley; cranesman, Thomas Reed; runner not named.

Tug Marinette—Captain, John Robertson; engineer, Joseph Sayen.

Tug Goldsmith—Captain, Charles Abair; engineer, William Iron.

Tug Blazier—Captain, John Covell; engineer, not named.

Tug Dexter—Captain. not named; engineer, Jo. Harmon.

Tug Shelby—Captain, Chas. Jarriatt; engineer, Alexander Whalen.

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

HOW MANY RHUMB-LINES?

To the Editor of The Marine Record:

Your friend, in replying to my communication of April 2, seems to be at a loss as to what I mean by the term "rhumb-line," and comes to the conclusion that I recognize more than one kind. He is informed—if he does not already know it—that there are two kinds of rhumb-lines, one of which he has been kind enough to define for us, and which, for the sake of designation, we will call the geographic rhumb-line, and the other we will call the magnetic rhumb-line. This latter line is a track of a ship made by steering on a constant compass course. This course, being effected by the change of variation, would make the ship cross the geographic meridians at a varying angle, though the reading of the compass card remain constant.

The "geographic rhumb-line" is the theoretic course of ship, and though it is the correct course, no ship ever sailed on it, but always on the magnetic rhumb, which is always more or less divergent from the true or geographic rhumb; and it is the failure of the general public to recognize the two kinds of rhumb-line that has raised this discussion.

Our friend informs us that in order to follow the rhumb-line the navigator must change his compass course frequently to compensate for the change of variation, and here it should be remarked that on the lakes no other than the rhumb-line course is known.

It was to the end that some means might be suggested for keeping ship more clearly on her course than can be done by the instructions on our charts, good as they are, that I have started the discussion of this question, and it gives me pleasure to have one so competent as my critic appears to be pronounce the method that I suggested in the issue of April 2, and illustrated in Fig. 3 of that paper, as "clear and acceptable." My fullest ambition in that direction is now gratified. I know that if it should be adopted it will give entire and satisfactory relief in the difficulty mentioned, and without something of the kind our ships are liable to get badly off their course.

Our friend is at a loss, or badly out in comprehending my illustration of the reason why the two rhumb-lines, *i. e.*, the ship's track and the geographic rhumb-line cannot agree.

Perhaps I am remiss in n t making the thing as plain as it should be, inasmuch as the idea is somewhat new, and another reason for his embarrassment is in the fact that he fails to recognize that while there are two kinds of rhumb-lines there are also two kinds of card motion also to be considered. Thus, if on any latitude we sail, say due west, then, in order that our geographic card may always have its zero point to the north, as it must in order that we may sail due west, it must swing to the right through an angle equal to the inclination of the meridians between which we sail for that latitude.

This motion for any latitude is strictly uniform, varying with the difference of longitude. But not so with the motion of the magnetic card, which is only variable, so that strictly the change of variation is not the full motion of the same, as is generally supposed, and as supposed in my illustration, but the difference of the motion or swing in azimuth of the two cards.

The fundamental idea is, that in order that the two rhumb-lines may coincide the swing or motion of the azimuth when referred to the initial meridian must be strictly the same. With this interpretation of the conditions stated, I think there will be no trouble in comprehending the manner of my text.

There is a small area in the North Pacific, central in about latitude 20°, where the motion of the two cards is very approximately equal; this condition is indicated by the isogonic curve running nearly on a parallel of latitude. Here, of course, the two rhumb-lines will nearly coincide, but in nearly every other point of the navigable part of the globe, the magnetic rhumb will diverge from the geographic rhumb to the right or left.

With regard to his illustration of what he calls my error in regard to the magnetic pole, he is peculiarly unfortunate. By his two spherical projections constituting his Fig. 3 he gives what he calls the true idea of magnetic meridian and the magnetic pole, first giving a definition of the magnetic pole entirely different from that which I gave and which I disputed.

The ideas he gives are chiefly those of Gauss, who deduced the place of the pole approximately, which afterwards, in 1831, was found by Capt. Ross, but somewhat to the south and west of the place indicated by Gauss.

At the time of the discovery by Ross this pole was supposed to be a center governing the direction of the needle in the surrounding country, and indeed in the whole hemisphere. Accordingly Duperrey, partly from fact and partly from fancy, constructed what he called a system of magnetic meridians, connecting opposite magnetic poles, almost precisely as represented in Fig. 3 of the illustrations published April 23. But these theorists soon found themselves ahead of the times. This pole found by Capt. Ross was only a pole of maximum magnetic intensity, which might be called a dynamic pole, and not at all in a sense of having control over the direction of the needle in remote parts of the hemisphere. Besides, there were other poles of almost the same intensity in this hemisphere.

But the sorriest thing about the illustration of our friend is its wide departure from facts. From the interior of South America, in latitude about 15° south, longitude about 60° west, to the interior of British America in latitude, say, 60° north, longitude 90° west the illustrations by the meridian show a westerly variation; whereas, by actual surveys the variation is known to be easterly every rod of the way.

The definition of a magnetic meridian, as shown in our friend's illustration, is given by Duperrey, is such a line as would be traced by traveling in the direction indicated by the compass needle, from one magnetic pole to the other. The unfortunate thing about this definition is that no two pairs of meridians ever converge to the same point, as do the geographic meridians, as a consequence no such pole has ever been found, nor will such a pole ever be found.

Again, the illustration of Fig. 3 shows meridians converging to the dynamic pole discovered by Ross, with almost the same regularity as the geographic meridians converge to the geographic poles.

Now, the well known fact is that there are absolutely no intersection of converging meridians at this dynamic pole from points at any considerable distance. The nearest intersection being say 300 miles away, and up to 2,000 miles, mostly to the east and north. (See chart of Magnetic Declination for 1885 by Otto J. Ktobz.)

The one simple law referred to in my paper, by which a small magnetic field may give direction to a magnetic needle in spite of a larger field more remote, disproves beyond a possibility of refutation, the possibility of a single point or pole giving direction to the needle in the whole hemisphere.

With regard to the bill for navigating the lakes by a trolley line, as proposed by our long time friend, Capt. John Swainson, I think it will have to go over till another Congress more efficient than the one in session now. It takes them too long to do a thing quickly. And with regard to his criticism of my remarks concerning the failure of our new chart to meet one particular of our wants I would have looked for a better shot than he made. What he called errors, or referred to as such, are not errors at all, and at worst could only be called a deficiency, and even this I excused by laying the trouble to a peculiarity of our locality. Hope friend Swainson will take better aim next time.

H. C. PEARSONS.

Ferrysburg, Mich., May 2.

A PROGRESSIVE MARINE INDUSTRY.

To the Editor of The Marine Record:

It is always pleasant to note a marked progress in any line of marine industries, and while the greater interests of ship and engine building, boiler making, steam windlasses and steering gears of various and improved types, etc., etc., are duly heralded through the medium of the trade press, it is directly within the province of the RECORD to pay a well entitled tribute to printers' ink as demonstrated in the increased volume and improvement of contents contained in the Beeson Marine Directory for the current year. Not only is the publication enhanced beyond the last of any preceding annuals but the enterprising publisher has added a fully equipped type-setting plant to his well-established business, so that in the future the work of compiling, as also the composition of the marine directory in all its branches will be carried on in one of the most select, centrally located and convenient buildings in the city of Chicago.

In viewing the annual progress made in this technical publication during the past ten years, too much credit can not be given to the well directed energy and business aptitude of its author and proprietor, Mr. Harvey C. Beeson, who has brought the work along from almost insignificant proportions up to a pretentious cloth bound volume of over 400 pages and made it a standard authority on the matters of which it treats, so that it may now be candidly stated that in so far as material and technical advancement is concerned, as well as the improved adaptation of printers ink, there have been no more advanced strides made in this industry than can be observed in the current annual editions of Beeson's Marine Directory, a work, by the way, which is universally acknowledged as being a positive necessity to all interested in maritime offices on the lakes.

During a recent visit your correspondent was highly pleased to be shown through the well-equipped and orderly kept printing rooms of the directory, where all hands were apparently intent upon the work of setting up the various portions of this marine publication under the efficient management of Mr. Thos. Morris; and later, on a visit to the handsome offices of the proprietor in the Royal Insurance Building, where the several vessel clasifieation registers and technical works, as well as the daily papers from the more important lake ports were to be found on file and kept chiefly for reference and the convenience of callers and visitors from out of town connected in any manner with the marine interests.

CAPT. J. SWAINSON.

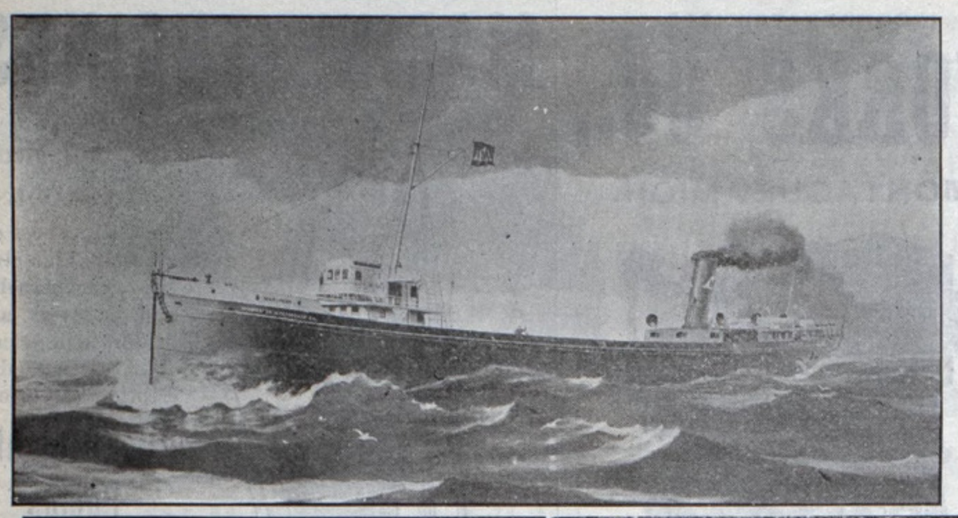
TRADE AND INDUSTRIAL NOTES.

The Lunkenheiner Co., of Cincinnati, New York, and London, have issued a very fully illustrated pocket catalogue of their various types and styles of valves, oil cups, spray-feed and sight-feed graphite lubricators, etc. Copies of this catalogue will be sent free upon request.

It is very important to have a windlass so made that the wild cat or chain wheel and the shaft shall be supported solidly by a bearing. Otherwise the windlass is liable to break when snubbing the chain suddenly, or in an emergency; also when riding at anchor in heavy weather. In the "Providence" windlass as made by the American Ship Windlass Co., of Providence, R. I., the wild cat is placed close to the side bitt and in contact with it, so that the wild cat and shaft are solidly supported. The shaft is of the full size and is not weakened by cutting a thread in the shaft, as in some other styles. These are very important matters to ship owners, and these two little items will oftentimes prove of more value than the whole cost of the windlass, but every point of the "Providence" machine is looked after and has been perfected by a study of over forty years in practical use.

F. S. and J. D. Negus' Nautical Almanac has reached the fifty-seventh year of its publication, and while published primarly for the benefit of ships entering New York and those engaged in the coasting trade, it is found by many lake masters to contain much that is of great service to them throughout the year. The calendar gives the sun's apparent declination and the equation of time, and contains a blank log for the entire year. The almanac is virtually a coast pilot for the Atlantic coast, and this year's edition contains the international "Rules of the Road at Sea." The RECORD see that it is sent to any master on receipt of 20 cents to pay postage. Charles Potter, optician, No. 31 King street, east, Toronto, Ont., has just issued a large catalogue of his optical and mathematical instruments, including many goods of service on shipboard. Mr. Potter's business has been established over 40 years.

A correspondent of the Army and Navy Journal pays the following tribute to Col. Jared A. Smith: "Colonel Smith has saved the government thousands of dollars by his ceaseless care for and personal attention to the multifarious public work under his charge. As a gentleman and citizen he has no peer. His patient courtesy, generous kindness, just and honorable treatment, have won the respect, friendship, good will and gratitude of every person, whether business men or employes, who have had the good fortune to come in contact or transact business with him during his long, honorable and most useful army service."



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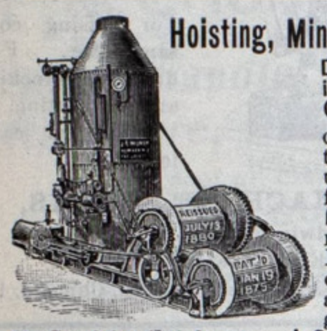

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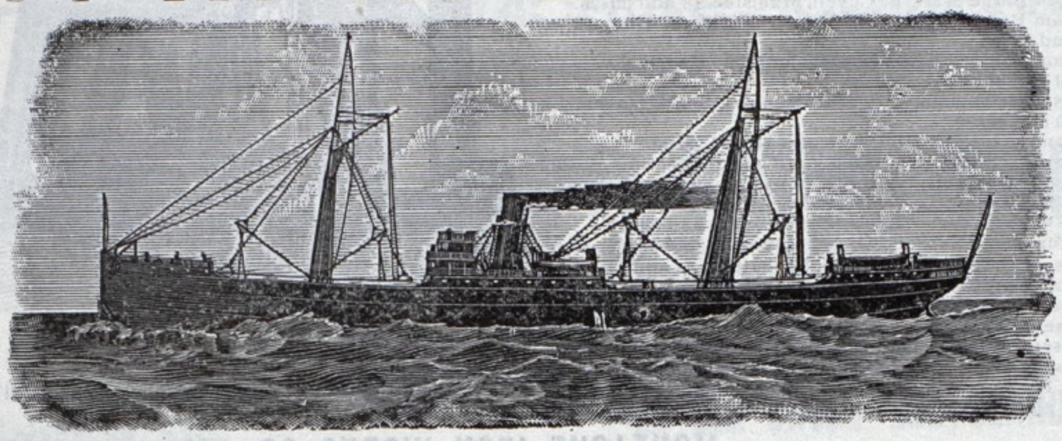

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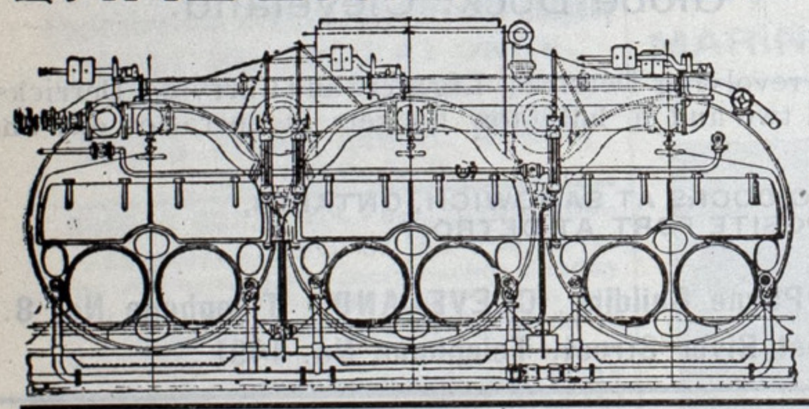

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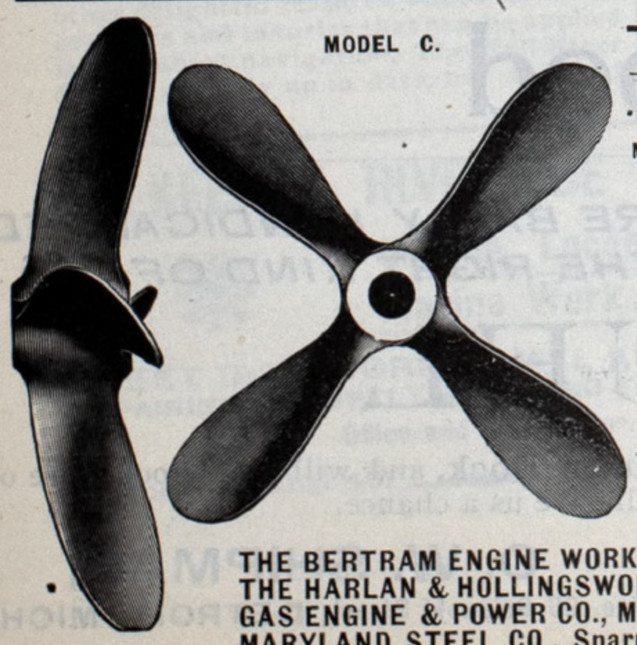

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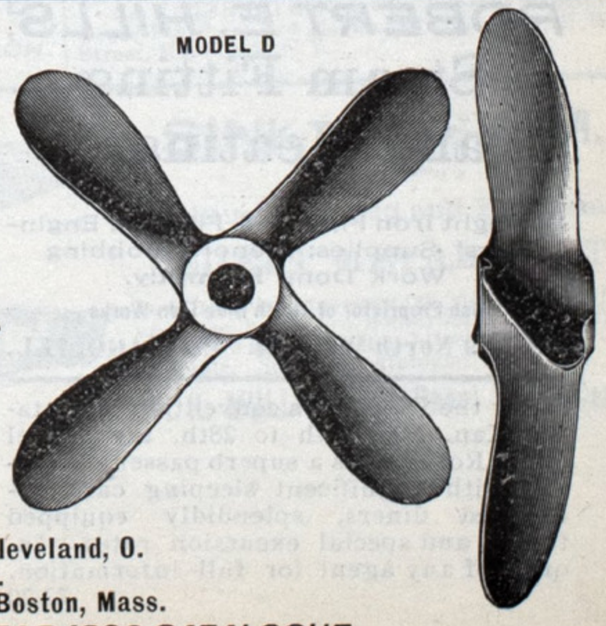

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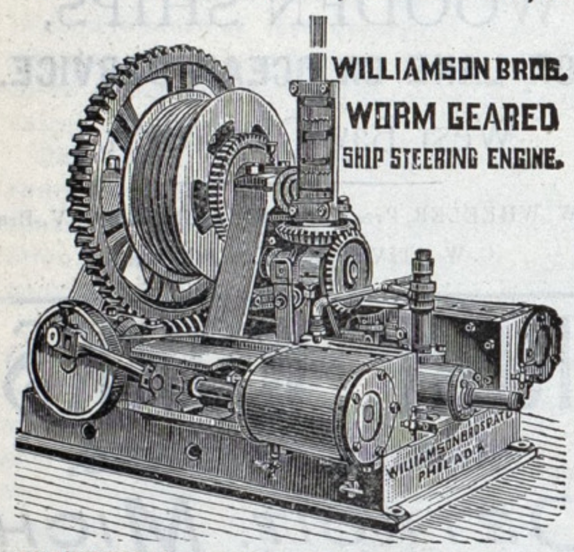

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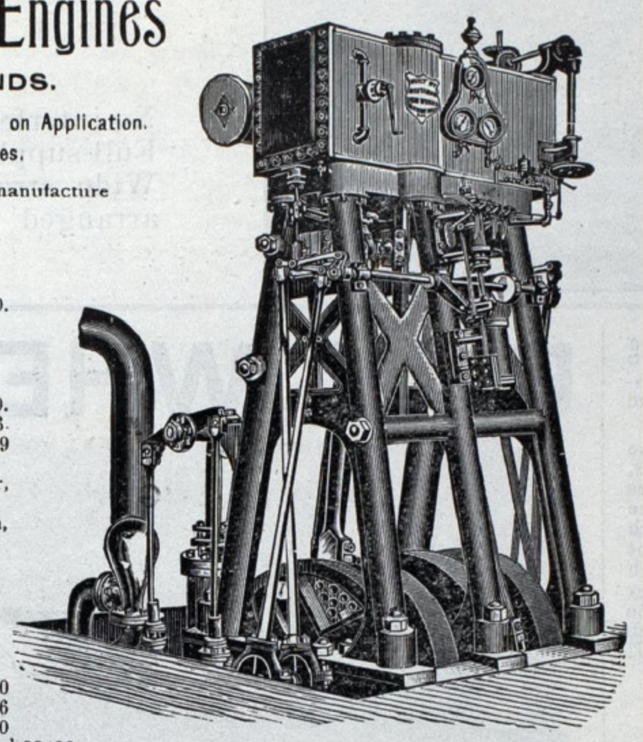

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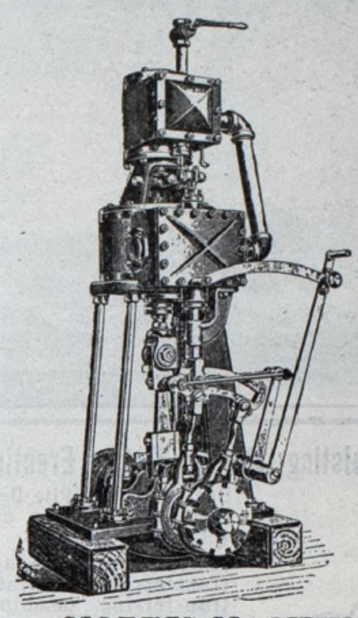

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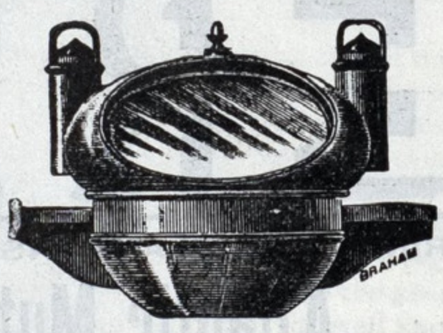

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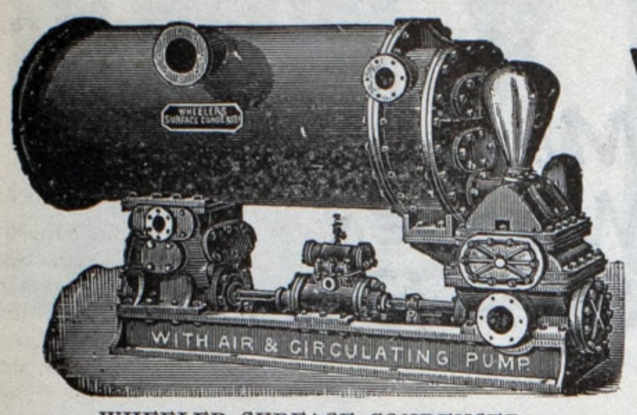

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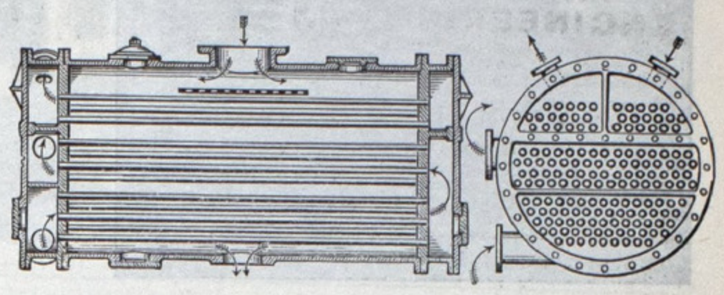

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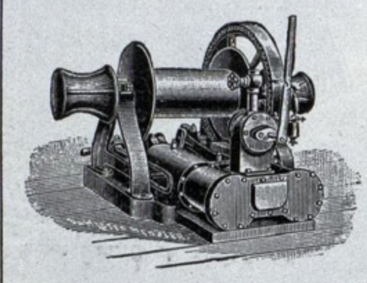

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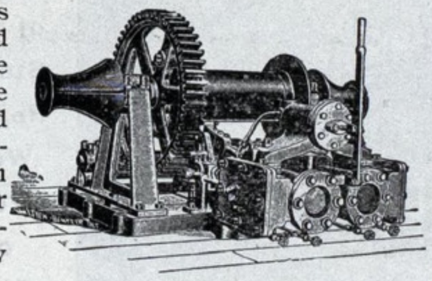

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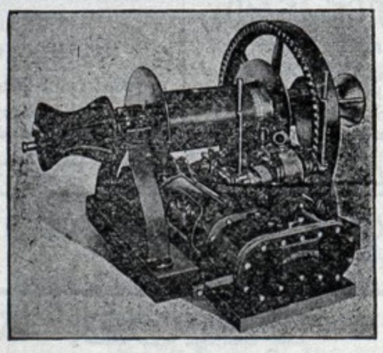

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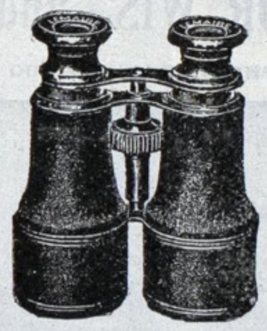

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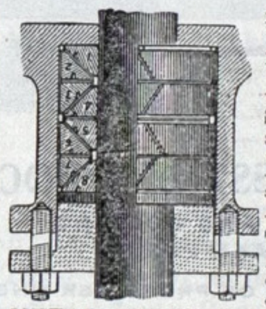

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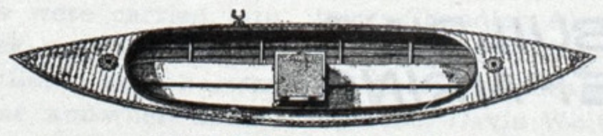

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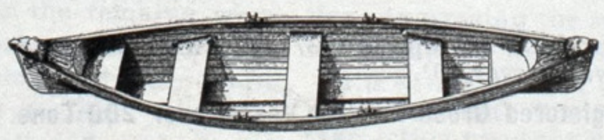

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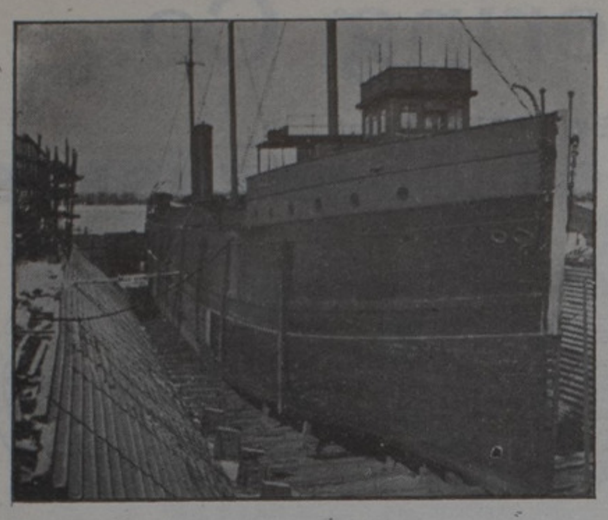

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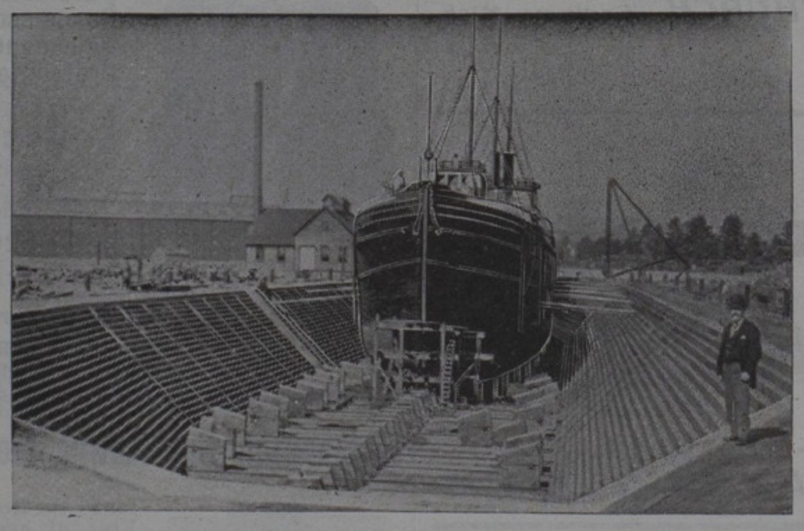

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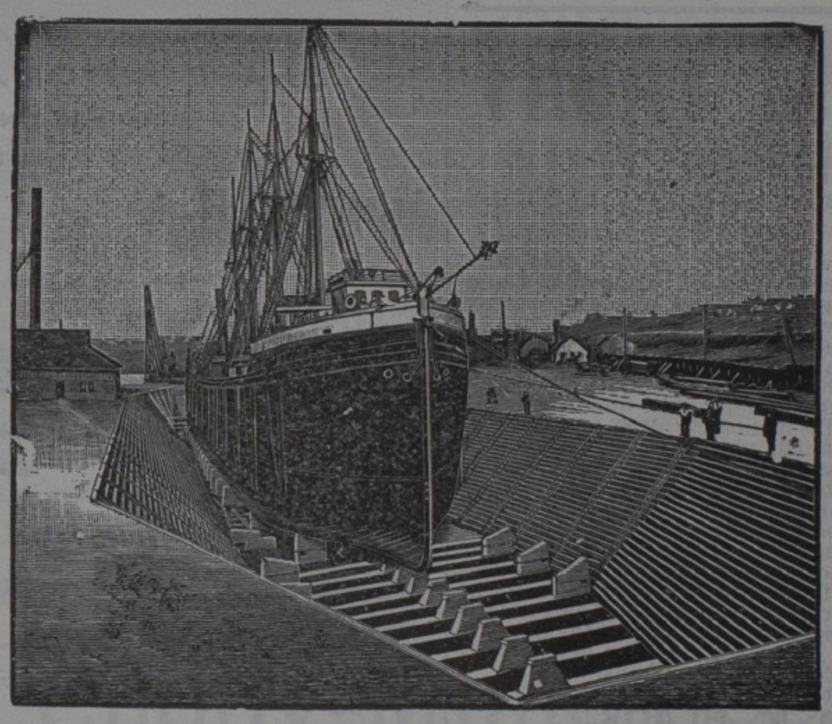

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